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THE OHIO STATE UNIVERSITY
COLLEGE OF EDUCATION
GEORGE F. ARPS, *Dean*

EIGHTH ANNUAL EDUCATIONAL CONFERENCE

OHIO STATE UNIVERSITY

Keynote:

Teaching as a Fine Art

April 12, 13, and 14, 1928, at Columbus *Reserve the dates*

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Educational Research Bulletin

AN INVESTIGATION OF TEACHING QUALITY

T. Howard Winters
Ohio State Department of Education

In October, 1922, a committee which comprised one professor from the college of education of each of the three state universities of Ohio, and one professor from each of the two state normal schools,[1] undertook, at the request of the presidents and deans of all these institutions, an intervisitation to gather facts from which policies of mutual agreement and recognition of credits might be determined. The report of this committee was made in February, 1923. To the disappointment of the members of the committee, who had devoted most of their time for three months to the investigation, no part of the record was released for publication. The report, which covered 189 single-spaced mimeographed pages, included many facts and numerous tables, and would probably have taken good rank as a survey in the field. Before the work was begun, several days were spent by the committee, under the leadership of Dr. B. R. Buckingham, director of the Bureau of Educational Research, Ohio State University, in determining the scope of the investigation and in outlining the plan and preparing the forms to be used.

The significant feature of the survey was the attempt to investigate the "quality of instruction." Regardless of the fact that the findings of the committee were never released for publication, and although much time has elapsed since the survey, its method and some of its results may yet be of interest.

To secure an estimate of the institutions in respect to the quality of instruction many days were spent by all members of the committee in visiting classes. That the results of the observations might have some consistency, the members of the committee determined ten points which would approach objectiveness and which would, in their judgment, constitute an analysis of teaching quality. These ten points were: (1) the attention of the students, (2) the interest shown by the students, (3) the teacher's preparation for the lesson, (4) the introduction to the lesson, (5) the organization of the lesson, (6) the movement of the class work, (7) the participation by the students, (8) the preparation of the students, (9) their realization of the apparent purposes of the work, and (10) the assignment of subsequent tasks.

The judgment of an act of teaching is largely subjective, even when such an analysis is applied to it. However, competent judges are not likely to be at opposite poles in their estimates of such outstanding features of a class exercise or to fail to make observations on them if they remain an entire period.

[1]The five institutions were Ohio State University, Columbus; Ohio University, Athens; Miami University, Oxford; Bowling Green State Normal College; Kent State Normal College. Only the faculties of Arts, Philosophy, Science, and Education were considered in Ohio State University. The institutions were represented respectively by Professors B. R. Buckingham, W. L. Gard, B. M. Davis, C. F. Reeba, and L. S. Ivins. The writer, the sixth member, represented the State Department of Education.

The plan of visiting provided that two members of the committee would observe a lesson, and that they would remain during the entire period. The plan was not always carried out, for 60 of the 147 teachers rated were judged by only one visitor. The ratings of the different visitors showed individual tendencies toward high or low ranks. Quantitatively, this is shown by the fact that 45 percent of the marks given by one visitor were A's, while another visitor gave only 7 percent; of the former visitor's marks 20 percent were C or less; of the latter visitor's marks 25 percent were D or below. The committee finally attempted to correct this variation by multiplying each grade, given by a visitor who tended toward high marks, by a factor which would reduce it in the ratio of the grades of that individual to those of the lowest marker of the group.[1] Thus, the marks of various visitors, on different points or for the different institutions, became presumably more comparable.

The chief purpose of the committee in studying teaching, as well as other features, was to compare the five institutions, but the detailed findings of the survey would have little significance now because of changes in personnel. The classes visited were, for the most part, the subjects taught in a two-year normal school, or in the first two years of a teachers' college. This was due to the fact that the committee was concerned with the transfer of credits among the institutions, and credits in such subjects were those most commonly offered. Therefore, relatively larger numbers of classes taught by the heads of departments, or faculty members of first rank, were visited in the smaller schools. On the other hand, excellent teaching of courses in methods by critic teachers increased the average of the quality of instruction in the institutions which had elementary practice schools. At Ohio State University, ratings were made of the teaching of 13 professors, 10 assistant professors, and 16 instructors; in Bowling Green State Normal College, 15 professors, 7 instructors, and 2 critics; in Miami, 10 professors, 14 assistant professors, 2 instructors, and 3 critics. These comprised 77 percent of the Bowling Green faculty, 33 percent of the Miami faculty, and but 24 percent of the faculties in those colleges of Ohio State University considered by survey committee.[2]

The committee also possessed a mass of data which answered certain other questions. These, as far as answers were attempted, were: (1) How do teachers of the various ranks, professor, assistant or associate professor, instructor, and critic teacher, compare in quality of instruction? (2) How do teachers with degrees of several grades, Doctor of Philosophy, Master of Arts, and Bachelor of Arts, or equivalent degrees, compare in this respect? (3) How does the quality of teaching in one subject compare with that in others? (4) In what aspects of teaching are the weaknesses most prevalent or least so?

In the first of these comparisons, professors and critic teachers were discovered to have the best ratings; and the ratings of instructors were found a good deal below those of assistant professors. The averages were: professors, 3.815; critic teachers, 3.842; assistant professors, 3.662; and instructors, 3.297.[3]

[1] For each A rating on any one of the ten points, 5 was substituted; 4, for each B; 3, for each C; 2, for each D; 1, for each E. The average of these marks of Committeeman X being taken as a standard, the *factor* by which Committeeman Y's grades were multiplied was

$$\frac{\text{Average of Committeeman X's Grades}}{\text{Average of Committeeman Y's Grades}}$$

This of course assumes that Y was as high in marking one teacher or one of the items considered as in marking another.

[2] Colleges of Arts, Philosophy, Science, and Education.

[3] These are adjusted ratings, by a method slightly different from that described in footnote 1. The grades of each committeeman were multiplied by the factor

$$\frac{\text{Average of one's own grades}}{\text{Average of grades of all}}$$

The difference between these extreme averages, .537, was 15.8 percent of the distance between 1.8 (for the lowest E) and 5.2 (for the highest A). The medians had less range. The general effect was to place professors high in the class of "fair teachers," as a rule; instructors ranked a little below the class of "fair teachers," but high in the class of "poor teachers." That, one might say, is as it ought to be, unless we take the ground that all should rank high; but if that were the finding, an average rating would at any rate no longer mean the average of these ratings of college teachers.

When a comparison was made of the marks which the members of the committee gave on the teaching points to the teachers with the several degrees, little difference was discovered. The Doctors were rated a little the highest. The medians of Bachelors and of Masters were almost exactly equal, as also were the average marks of the Bachelors and the Masters.

The ratings of all teachers of English and other subjects were assembled for comparison, with the result that the quality of the teaching of the several subjects appeared in the following order, with the subject that made the best showing first: foreign languages, social science, science, mathematics and methods of teaching (same rank for each), arts (including music, home economics, drawing, commercial education, manual training, physical education), English, and education. The above rank was determined by the medians. When the averages were used, the four middle items were arranged in a somewhat different order, which was science, social science, methods, and mathematics, while English and education changed places.

These two subjects, English and education, in the opinion of the committee members, were the subjects most poorly taught in the classes visited. Foreign language was taught decidedly best. For these discoveries no explanation was known, except that, since the members of the committee were all especially interested in the teaching of education, they perhaps were more critical in rating those lessons.

The last comparison made in the committee's report was of the ranking of the qualities themselves which formed the basis of the scheme of rating. These ten qualities listed before, when averaged from unweighted data, fell in the following order, with the quality which made the best showing placed first: teacher's preparation, attention, interest, introduction, organization of lessons, realization of apparent purpose of work, movement of class work, participation of students, preparation of students, and assignment of work. Although the committee offered no such sweeping denunciations as have sometimes been made, they did feel called upon to comment strongly on some of the low points of teaching.

In a number of classes the students did not seem to be held to any definite preparation of any kind whatever. Under these conditions, the committee felt that the total benefit obtained from a course is "less than enough to warrant fairly the credit given." This lack did not seem to be connected with any particular type of instruction or any particular subjects. The failure to hold the members of classes to definite work in some way seemed especially unwise when the students taught belonged to the early years of college or were undertaking the beginning phases of the various subjects.

Hasty and indefinite assignments were also deprecated. Such often precluded the probability of good preparation by the students. If the teacher had aims and plans, they should not have miscarried because of the teacher's failure to point out to the students the duties to be performed in order to gain the goals desired.

Besides grading the qualities as already described, each visitor added miscellaneous comments. Gathering together those comments which were common to the notes of several visitors, we derived a list in which some of the most elementary faults of beginning teachers appeared, as well as some more likely to be found in higher education. Some of the faults noted were: repeating questions and answers; assignment only by pages or chapters; instruction beyond the students' understanding or too elementary for them; mannerisms or affected speech; mere question-and-answer lesson; poor organization and labored effort; loss of time in placing the material on board; mimeographed syllabus practically the same as the text; exhibition lesson for the visitors; flat rejection of errors which students could have discovered for themselves; little thought in recitation hour but artificial interest because of quiz to come; failure to clear up the subject or give the students directions for working it out; too wide a range of topics for one lesson; and too many students for the successful accomplishment of the work.

Size of classes, just mentioned, would not be regarded as a quality of teaching, although it may prove to be an influencing factor. However, it was a matter of some interest to the committee, and they gave it some attention. In many cases the best of instruction, even when judged from the standpoint of pupil participation, was given in classes numbering more than thirty. The teachers who carried the heaviest teaching loads, measured in student-hours,[1] averaged highest in quality of teaching.

The notes of the visitors did not fail to include favorable comments, some of them indicating conventional teaching merits and others mentioning merits not so often observed. In the merit list are found: observance of the psychology of the subject; excellent selection of materials; appreciation of student's suggestions; clearness of language used by the instructor; application of principles previously considered; setting of good problems; students carrying on work by their own organization; use of visual materials; and many others.

Some attention was given to the question of difference in quality of instruction in two-year (normal) and four-year courses. The data which might bear on the question were not compiled for quantitative consideration, but the consensus of the committeemen was that these courses were not distinguished notably in respect to quality of instruction. The same appeared to be true of the work in the Colleges of Arts compared with the Colleges of Education.

Perhaps the results of a repetition of this survey would be very different. Possibly it would be only slightly so. The effects were doubtless greatest in remedying violations of good practice in such matters as standards of admission and graduation, teaching load, faculty training, and extramural and summer credits. There is, however, much more human interest and much more practical importance in the quality of instruction of an institution, in whatever way we may define the components of that quality, than in any formal standards. There is worth in any investigation which stimulates comparisons of these important values—provided it comes to the knowledge of the groups of individuals concerned.

The Otis Hower Vocational School, offering courses in seven trades, opened in Akron at the beginning of the school year. This school was made possible by Mrs. Hower who gave the Board of Education the free use of an entire floor of a business building.

[1] Five hundred or more student-hours. The heavy teaching load came in some cases from teaching an extra number of classes, rather than unusually large classes.

THE VALUE OF BUILDING TESTS IN ENGLISH GRAMMAR

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Audubon Junior High School, Cleveland

THE PURPOSE of this article is not to prove the value of building tests in English grammar by the personal testimonial method or by any other method based upon their popularity with teachers. Teachers have a tendency to approve or disapprove of building tests as the medians of their sections rise or fall. A fair test is one concerning which they can answer positively the questions: "Is it easy?" and "Will my pupils make good scores?" This is not offered as a criticism of teachers, but as evidence of the fallacy of reports based upon their normal human reactions. The results given here were obtained by purely objective procedure. They are submitted as final proof of the value of building tests as teaching tools.

The experiment discussed in this article was conducted in a junior high school[1] of approximately twenty-three hundred pupils. Only six hundred of these, the pupils of Grade VII-B, were used in this study. Upon entering the junior high school, these six hundred were divided into sixteen sections according to intelligence. The probable learning rates (*P L R*'s) of the entire group ranged from 50 to 150, Section 1 having a median probable learning rate of 135 and Section 16, a median of 68. Sections 1 to 4 with probable learning rates ranging from 110 to 150, were classed as X sections; Sections 5 to 12, with a range from 90 to 110, were Y sections; Sections 13 to 16, with a range from 50 to 90, were Z sections.

In devising the tests in grammar, the writer kept in mind the first aim of the grammar test, to test information in grammar and not intelligence. The directions were, therefore, as simple as possible, calling for only one item at a time and using no words or system of marking not within the grasp of any member of Section 16. The material in the tests was based on the points in the grammar assignment considered essential to the understanding and use of the oral or the written sentence. This grammar assignment followed the outline in the new course of study, which is itself an expression of what the English teachers of Cleveland consider fundamental in English teaching.[2]

The tests were diagnostic; they covered a specific unit of work (to be completed in thirty periods); and they consisted of three parallel forms, A, B, and C, to be given to all sections on successive days with no instruction in grammar intervening. The medians for each section should have been, and were practically, the same on all three forms.

Since these sections were ranged from one to sixteen on basis of their probable learning rates, one would be reasonably safe in assuming that, if the same teacher taught all sixteen sections for thirty periods, the lowest section would absorb about 50 or 60 percent of what the highest could learn in the same time and that the median score for each section would rise with its rank in probable learning rates. On a graph such an ideal would be pictured by a diagonal straight line, starting with the median of Section 16, and passing through the median of each section in order until it reached its

[1] Audubon Junior High School, Cleveland, Ohio. For further account of the experiment, see "The English Curriculum," *English Journal*, 16:441–45, June, 1927.

[2] *Tentative Course of Study in English for the Junior High Schools, 1926–27*. Address: Clarence Stratton, Director of English, Board of Education, Cleveland, Ohio. Price, 20c.

highest point in the median of Section 1. The sixteen sections were actually taught by nine teachers, not one. A comparison of Figures 1 and 2 will show that, after a semester's work, this ideal condition was almost attained by these nine teachers.

The numbers at the top of each graph represent the number of each section; the numbers at the side, the median score of each section expressed in percent. This median was obtained

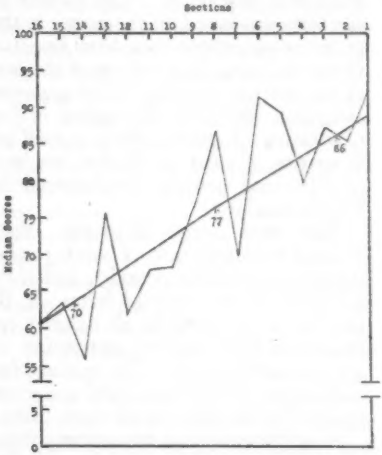

Figure 1. Scores on building tests in Grade VII-B grammar during the first six weeks

by averaging the medians of Forms A, B, and C, two of which had been graded by bright pupils and one by the teacher. The normal line was determined by averaging the medians of the three groups, X, Y, and Z.

When Figure 1, in which were displayed the median scores for the first six weeks, was placed in the hands of the teachers, they were told that, if the medians for their sections were above the normal line, their teaching had been above the average of the group; if their medians fell below the normal line, their teaching was below average. It was the problem of the individual teacher to find out "why" and bring her sections up to standard.

During the second period of six weeks a distinct improvement in teaching appeared. Although all the medians were lower because this unit of work was very difficult, none of them was so far above or below the normal line as those in Figure 1. The graph showing this record is not included. Figure 2 shows that this range from the normal

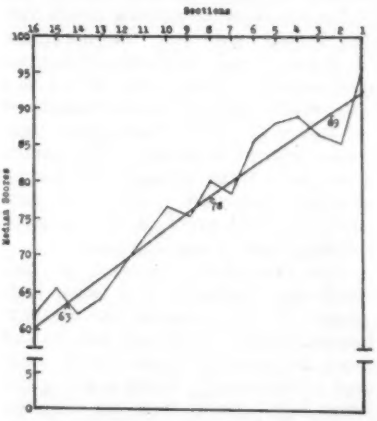

Figure 2. Scores on building tests in Grade VII-B grammar during the third six weeks

line was almost eliminated during the third period.

Any test in grammar, to be justified as a teaching tool, must not merely test information; it must measure improvement also. The gradual disappearance of sharp rises and falls in these medians from Figure 1 to Figure 2 is adequate proof of the increased efficiency in teaching during the time of the experiment.

Building tests may cease to be effective, however, if they become burdensome. This would quickly happen if

this experiment were continued in all grades at the same time. The purpose of the original experiment was to set a just standard of attainment for all groups, a standard that a teacher could be expected to meet regardless of the mentality of her group.

In order to make sure that the standard was fair, the same tests were repeated and restandardized in the VII-B classes the following semester. This group included thirteen sections of which only Sections 1 and 2 were X sections with probable learning rates ranging from 110 to 153. Sections 3 to 7, with a range from 90 to 110, were Y; Sections 8 to 13, with probable learning rates below 90, were Z.

TABLE I

SCORES ON FORM C AFTER A PRACTICE PERIOD

GROUP	SECTIONS	AVERAGE	OLD AVERAGE	
			Form C	All Forms
(1)	(2)	(3)	(4)	(5)
X.....	1-2	94	86.7	86.3
Y.....	3-7	83	76.7	76.5
Z.....	8-13	68	63.5	63.9

Forms A and B were used as practice tests in the fourth and fifth weeks. The time between the giving of each form was spent in teaching the points in grammar in which the sections scored lowest on the practice tests. Form C was given the sixth week and sent in to be graded by pupils. The results for the first six weeks are given in Table I. The use of Forms A and B as practice tests raised the medians on Form C considerably above the old average on Form C and on all forms combined.

It would seem fair to require that future teachers of seventh-grade grammar bring their sections up to these set standards before passing on to the next unit of work. Thus, when an X section makes a median of 90 percent or above on any form, the section should pass on to the second six-weeks work; when a Y section makes a median of 80 percent or above, it also should pass on and not spend time overlearning; a Z section should either not attempt the regular assignment or pass on with a median of about 65 percent.[1] As the tests are diagnostic, the teacher can tell by looking at Form A what her pupils are missing and drill on those points. The use of all three forms ought not to be necessary.

Hereafter, the only building test in Grade VII-B will be the semester tests which will include only those portions of the assignment that are essential to beginning work in the grade. All X and Y pupils will be expected to make a given percent, if possible 70, before they are allowed to take VII-A work. With the use of standardized practice tests, this end ought to be easily attained.

The building test does not limit any teacher to any method of teaching. She may use projects, socialized recitations, or any means she wishes to obtain her end. She knows definitely what is expected of her pupils. The teacher who gets them the next semester has the right to demand a foundation upon which she can build. In at least one phase of her subject, the English teacher does not merely think she is teaching. She knows whether she is or not.

***

Another test in the Van Wagenen Reading series which is now on the market is a reading scale in English literature which is available in two forms—Alpha and Beta. Each scale consists of sixteen prose paragraphs and poetic selections with questions to be answered. The tests may be obtained from the Public School Publishing Company.

[1]The Pribble-Breuer Practice Material, published by Lyons and Carnahan, has proved much more suited to low sections than the regular grammar work.

THE INDUSTRIAL ARTS IN EDUCATION

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INDUSTRIAL-ARTS education is one of the four so-called "practical arts"—agricultural, domestic or homemaking, commercial, and industrial arts.[1] The activities involved in these arts are called "practical," indicating their use in everyday life, to set them off from the liberal arts. They are called "arts" to distinguish them from the same or similar activities carried on for vocational or wage-earning purposes. A boy, for example, may learn to transplant shrubs with the intention of becoming a florist; he may learn to sew on buttons in order to become a tailor; he may learn to write business letters as one step toward becoming a merchant; and he may learn to drive nails with the notion of making his living as a carpenter. If these or similar things are learned with definite money-making purposes, the learning is called vocational education. Any one is likely to need to know and be able to do all of these tasks, and many other similar ones, entirely aside from his life work or occupation. These tasks may be entirely unrelated to what one does to make a living, but all of them may be important at times. If one learns such things merely for general purposes, that learning is called "arts education."

The butcher, the baker, or the candlestick-maker—to say nothing of the doctor, lawyer, merchant, or chief—each must learn many things peculiar to the way in which he makes his living. Each of them is likely to find it convenient to know how to do a great many other things not closely related at all to making a living. He will be fortunate if he has sufficient mechanical ability to make minor repairs or adjustments on the family car, the sewing machine, the electric washer; if he can regulate the clock, read the gas meter, stop a leaky faucet or can do something about the cupboard door that will not go shut when the weather is damp or the bookcase veneer that threatens to peel off when the weather is too dry. The man who is helpless to meet a great many of the small mechanical emergencies common to modern life is a seriously handicapped householder. Not only does Everyman need to be equal to many such small things as these but even Mrs. Everyman needs to be something of an engineer with all the mechanical contrivances found in the home of today.

It is not in making "Handy Andies" that industrial-arts education is of greatest importance. Two-thirds of all American families now live in towns and cities, and more people now are engaged in mechanical and industrial pursuits than make their living in any other way. Of course, machinery is chiefly responsible for this fact—machinery which increases production and lessens work and cost, which makes it possible for any one of us to have comforts and conveniences that were not even dreamed of by the wealthiest folks of earlier times. America has become an industrial democracy; and any proper understanding of American life is impossible without an understanding of American industry—its materials, processes, products—and an understanding of the conditions of living that go along with all of this social industrial organization. Every day we see more clearly the truth of John Dewey's statement "industrial activities are the most influential factors in determining the thoughts, the ideals, and the social organization of a people."

[1]One of a series of radio talks delivered from WEAO.

Moreover, since industry offers a more varied opportunity for employment than any other field of work, a knowledge of industry offers greater values to young men and young women in choosing their vocations. There was a time when industry was not so well established and when occupations of that character were rather looked down on. Many people had a feeling that careers in industry were not quite so respectable, or that opportunities in industry were not quite so good as in other fields of endeavor. If such things ever were true, they are not true any longer. Employment in industry today is just as fine and just as wholesome as in any other field. With the increased complexity of industrial life opportunities for genius in invention and management multiply; and, undoubtedly, there is greater professional opportunity in industry today than in any other field of work.

Industrial-arts education proposes to provide these sorts of knowledge, beginning in the kindergarten and continuing throughout the school years. In the elementary grades, no distinction is made among the various arts; children choose their learning activities without reference to whether they are chiefly agricultural, domestic, commercial, or industrial.

In the secondary schools, arts education begins to break up into different sorts of studies, as boys and girls begin to look forward toward choosing their vocations. As long as industry is of major importance in American life, so long should the high school give major attention to the industrial arts. Since the school is expected to teach the things that everybody living in an industrial democracy should know and be able to do in an industrial way, the high school must provide a variety of opportunities for industrial learning. One way in which this need may be met is through the general industrial-arts laboratory. Another effective way of helping boys and girls understand and find their places in the complex industrial civilization is through studies of occupations.[1]

Any one who understands the modern meaning of studies in the arts of industry knows that although it is called a "special study" in our schools, yet in reality industrial-arts education must be, and is, a broad kind of study. The notion of some, that it consists of a limited range of skills in making a few simple products in wood—a bread board, a wastebasket, or a crude taboret—fails to comprehend the modern meaning of this liberal phase of learning. That narrow notion belongs to the manual-training period. Of course, there are schools in Ohio, and elsewhere, that are still going along teaching a few simple skills and calling it "manual training," just as, no doubt, there are schools in Ohio, and elsewhere, still teaching what they call arithmetic and English grammar by having children memorize long rules and definitions, without any clear idea of what they are all about. But, in general, these and many other educational ways are changing for the better; and in nothing is there coming greater change than in our present-day notions of the industrial activities which ought to be taught and the ways of teaching them.

It always will be important that the persons who live in an industrial society should be skilled in doing many things with their hands no matter what their vocations may be. It is also of the greatest importance that each of them have an intelligent understanding of industry and industrial conditions, since from them he receives many personal comforts and satisfactions.

There was a time when men who were accounted wise thought that knowledge

(*Continued on page 378*)

[1]Later issues of this Bulletin will present articles dealing with industrial arts in the elementary grades, the general industrial-arts laboratory as a form or organization, and the place and importance of occupational studies in public-school provisions.

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TEACHING THE ALPHABET

WHEN we have no difficulty in doing a thing we say, "It's as easy as *ABC*." The alphabet for a long time represented the irreducible rudiments of learning. The greater part of the surface of the old hornbook was devoted to the letters from A to Z. The children learned these letters by tracing them, copying them, reciting them, and chanting them in unison. They learned the alphabet as a thing itself. No hint of the use of these letters in words entered to disturb the singleness of this purpose. When proficiency in this meaningless task was assured, the children might take up such inspiring combinations as, *a-b, ab; i-b, ib; o-b, ob; u-b, ub*. Were not letters the simplest of all linguistic elements, and did not syllables rightly follow upon letters as the simplest compounds? Words were clearly too hard for children to learn until they had been led step by step from the alphabet through two-letter symbols to longer patterns.

Today we do things much better. It is certain, for example, that we are teaching reading better. But, do we teach the alphabet better? One can't be sure about this. One can be quite certain, however, that a functional knowledge of the *ABC*'s is even more important today than it used to be when so much time was spent upon the letters themselves.

It is doubtful whether the full meaning of this is realized. We ought to be spending somewhat the same amount of school time on the alphabet as was spent on it in the days of our grandfathers. We ought, however, to spend this time in a very different way.

Not many schools teach the alphabet in use. Quite commonly children fail to use the dictionary because they cannot find words in it. We talk about the dictionary habit as a thing our students should acquire, yet many of them do not really learn to locate words until they study a foreign language and become industrious in thumbing a "vocabulary." Times without number, children will declare a word is not in the dictionary when the real trouble is that they cannot use the alphabet.

The telephone directory is the book now most frequently found in our homes. It is crowded with names in alphabetical arrangement. Children as well as adults have use for it, yet one is utterly unable to find a telephone number unless one has a practical knowledge of the alphabet.

We want our pupils to learn to use lists of cities in their geography books, lists of streets in a city directory, and, most of all, the indexes in books. They can never do this as long as—like some children—they have to find Boston by looking through all the *B*'s or William Randolph by scanning the *R*'s.

The learning of the alphabet in a functional way is not easy. It means far more than learning one's *ABC*'s. It means the ability to tell the location of each letter in the conventional series in relation to any other letter. It means, in the case of a list, the apprehension of the place value of the second letter among items which have the same first letter, a similar apprehension of the value of the third letter when the first two are constant, and so on. It means exercises in locating words, names of people, and

other verbal material, and inverse exercises in arranging the items presented in irregular order.

The teachers of our grandfathers were right. The alphabet is important. To be sure, it is not a necessary or even an effective approach to reading, but, as an instrument of high social utility—as an organizing and finding device—it has greater and greater value as men depend more and more upon extensive verbal material. In our judgment, the alphabet should be restored to something of its pristine glory as a subject in the school curriculum. B. R. B.

NEW YORK SALARIES

Except as the result of mandatory legislation, the Board of Education of the City of New York has increased the salaries of teachers only once during the past thirty years. Salary bills have been drawn and put through the legislature through political pressure and lobbying.

Early in 1926 a citizen's committee on teachers salaries was organized "to determine the facts about teachers salaries and to take salary adjustments out of politics by recommending fair and equitable schedules which could be accepted by citizens and teachers alike." The story of the organization and method of the procedure is too long to be told here but it may be found in the report which has been issued by the committee.[1]

The bases for determining salaries which were accepted as practicable and valid are:

1. The number of years of teaching experience.
2. The amount and kind of technical and professional training.
3. Under certain conditions, the ability of teachers to pass examinations set by the Board of Education.
4. The operation of the economic law of supply and demand if it be so applied as to safeguard certain social and professional values.

Among the features rejected were:

1. Higher pay for men than for women teachers.
2. Higher pay for teachers of older children or more advanced grades.
3. Higher pay for teachers rated as superior by their advisory officers.
4. The "family" wage, or higher salaries for teachers having a greater number of dependents.

In determining the schedules for senior high-school teachers the essential income of a married man with a wife and one child was accepted as basic. In the case of elementary teachers the income necessary for an unmarried woman living away from home was accepted as basic. These groups were found to be typical of the teachers in the two kinds of schools. It was further accepted by the committee that the average cost of food and rent should not exceed 55 percent of the basic salary for each group.

J. R. McGaughy was the director of the survey. Members of the committee gave a vast amount of time to the work, and the Metropolitan Life Insurance Company donated the services of its mechanical tabulation department in punching and tabulating the eleven thousand cards carrying the data supplied by the teachers. The committee recommends an immediate increase in salary for most of the teaching groups, and the adoption and putting into practice of the entire plan by the year 1930.

The Columbus Evening High School has issued a thirty-nine page bulletin which presents general information, and outlines and describes the courses of study. According to this bulletin, fourteen pupils received diplomas, after having finished their evening high-school course, at the joint commencement of Columbus high schools on June 15, 1927. This was the first class to graduate from the Columbus Evening High School, the first public evening high school in Ohio to receive a charter from the State Department of Education.

[1] *Teachers' Salaries in New York City.* New York, Teachers College, Columbia University, 1927. 236 pp. (Final Report of the Citizens Committee on Teachers' Salaries)

THE CONCEPT OF TWO OR MORE ARBITRARY ORIGINS AND ITS APPLICATION TO THE SOLUTION OF STANDARD DEVIATIONS

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THE USE of steps, involving arbitrary origins, in statistics is so well established that its desirability is beyond question. At the present time, the system of steps in most general use is probably the system wherein an arbitrary origin is assumed near the true mean, thus resulting in both positive and negative steps. The chief advantage of assuming an origin near the mean lies in the fact that the deviations and the square of the deviations are thus a minimum in point of size.

In spite of the evident disadvantage of dealing with negative numbers, the advantage of small numbers has apparently outweighed the former disadvantage in the minds of many research workers. Certain it is that the use of an arbitrary origin at zero, thus resulting in deviations all of which are positive, but which are of a maximum size of twice that of the previous system, has been slow in adoption. Apparently most research workers would prefer to deal with negative numbers such as -15 rather than the corresponding maximum step of $+30$ in the latter system. The slow adoption is, of course, partly due to the fact that one who has learned one method is often reluctant to abandon the old and learn a new method.

It is possible to deal with small positive numbers—never larger than 10—in the extensions, and yet secure values which will simplify down to the same resultant numerical quantities, in the final solution of the equations into which the extensions of the steps enter, as when the unmodified steps are used. This method involves the assumption of an origin at step -0, at step -10, and at each successive multiple of ten steps thereafter. The result is that in the computations no step-deviation is larger than 9 and no square of a step-deviation is larger than 81. In the checking computations the largest deviation is 10, and its square, 100 respectively.[1]

Let us represent by X' any true step ranging from zero upwards as far as desired (say 30 steps including the 0-step).

If

X'' = the deviations from successive arbitrary means

then in the steps 0 to 9

X''_1 = the deviation of X' from 0

in the steps 10 to 19

X''_2 = the deviations of X' from 10

in the steps 20 to 29

X''_3 = the deviations of X' from 20.

It follows that, in the steps 0 to 9

$$X''_1 = X'$$

hence

$$X' = X''_1 \quad \ldots\ldots\ldots\ldots\ldots\ldots (1)$$

in the steps 10 to 19

$$X''_2 = X' - 10$$

hence

$$X' = X''_2 + 10 \quad \ldots\ldots\ldots\ldots (2)$$

in the steps 20 to 29

$$X''_3 = X' - 20$$

$$X' = X''_3 + 20 \quad \ldots\ldots\ldots\ldots (3)$$

The arrangement of these new arbitrary steps in the solution of a standard deviation is shown in Figure 1. The gross scores, X's, are recorded in classes in the column headed *Class*. The steps are here recorded as X''s and finally the deviations from the three successive arbitrary origins are given in the column headed X''.

[1] These additional check columns on this basis are used in Revision No. 6, of the author's printed correlation sheets.

If we summate the above expressions over the three ranges involved we find:
for steps 0 to 9

$$\Sigma X' = \Sigma X''_1 \ldots\ldots\ldots\ldots (4)$$

for steps 10 to 19

$$\Sigma X' = \Sigma X''_2 + 10 \cdot N_2 \ldots\ldots\ldots (5)$$

for steps 20 to 29

$$\Sigma X' = \Sigma X''_3 + 20 \cdot N_3 \ldots\ldots\ldots (6)$$

Summating the X'-values for the entire chart of 30 steps

$$\Sigma X' = \Sigma X'' + 10N_2 + 20N_3 \ldots\ldots (I)$$

$\Sigma X''$ in this formula means the summation of all the extensions of the X''-steps of the chart. N_2 is the number of cases in steps 10 to 19 inclusive and N_3 is the number of cases in steps 20 to 29 inclusive.[1]

If we cumulate the frequencies from the top of the chart (step 29) towards the bottom of the chart (step 0) we shall find the value of N_3 in the window labeled a'. In the window labeled d' we shall have $N_3 + N_2$. Consequently, formula (I) above may be re-written in terms of the window lettered quantities; whereupon

$$\Sigma X = g' + 10\,a' + 10\,d' = D \ldots\ldots (II)$$

The three window quantities—g', a', d'—thus ultimately combine into one simple quantity, D, which is always positive, and which is of the same magnitude as would have been derived by obtaining $\Sigma X'$ from using the X'-column of the chart.

In similar fashion we may arrive at the extension of the squares, $\Sigma(X')^2$:
for steps 0 to 9

$$\Sigma(X')^2 = \Sigma(X''_1)^2 \ldots\ldots\ldots\ldots (7)$$

for steps 10 to 19

$$\Sigma(X')^2 = \Sigma(X''_2)^2 + 20\,\Sigma X''_2 + 100N_2 \ldots (8)$$

for steps 20 to 29

$$\Sigma(X')^2 = \Sigma(X''_3)^2 + 40\,\Sigma X''_3 + 400N_3 \ldots (9)$$

and summating for the entire distribution,

$$\Sigma(X')^2 = \Sigma(X'')^2 + 20\Sigma X''_2 + 40\Sigma X''_3 + 100N_2 + 400N_3 \ldots\ldots\ldots\ldots (III)$$

[1] N_1 (not appearing in the above formulas) is the number of cases in steps 0–9.

On the chart we find

$$\Sigma(X')^2 = h'$$
$$20\Sigma X''_2 + 20\Sigma X''_3 = 20\,e'$$
$$40\Sigma X''_3 - 20\Sigma X''_2 = 20\,b'$$
$$100N_2 + 100N_3 = 100d'$$
$$400N_3 - 100N_2 = 300a'.$$

Consequently, Formula III may be rewritten in terms of the window-lettered quantities:

$$\Sigma(X')^2 = h' + 20b' + 20e' + 300a' + 100d' = A \text{ (IV)}$$

We now have $\Sigma X'$ and $\Sigma\,(X')^2$ which may be substituted in the usual formula for the standard deviation in terms of these quantities.

$$\sigma_x = I\sqrt{\frac{N\Sigma(X')^2 - (\Sigma X')^2}{N^2}} = I\sqrt{\frac{N \cdot A - D^2}{N^2}} \ldots (10)$$

Where I is the class interval used in tabulating the distribution.

It is evident that the notation may be carried as far as one may desire. It is seldom however, that one desires more than thirty classes in a distribution.

It remains merely to point out the steps involved in obtaining the standard deviation and mean of a distribution of not to exceed thirty classes when using the form sheet. The steps to be followed are:

1. Determine the lowest score L and highest score H in the distribution to be plotted.
2. Find the inclusive range by the formula: Inclusive range $= H - L + 1$.
3. Determine the class interval by dividing the inclusive range by 30 and raising the quotient to the next higher integer. The quotient usually ends in a decimal which need not be computed.
4. Begin the 0-step and all successive classes with a multiple of the class interval. Thus if L is 13 and I is 4, the 0 class will start with 12–15; the 1-step will consequently consist of scores 16–19. The 2-step will include scores, 20–23, etc. In case the inclusive range is not more than 30, I will have the value 1, and the 0-step will begin with L. In this case no grouping should be resorted to.
5. Enter the tally marks of the distribution, five tallies to a compartment.
6. Add up the frequencies horizontally and enter in the column headed (Fr). The numbers at the top of the chart at the head of the bold-faced lines will be found to be of very material assistance in this procedure.

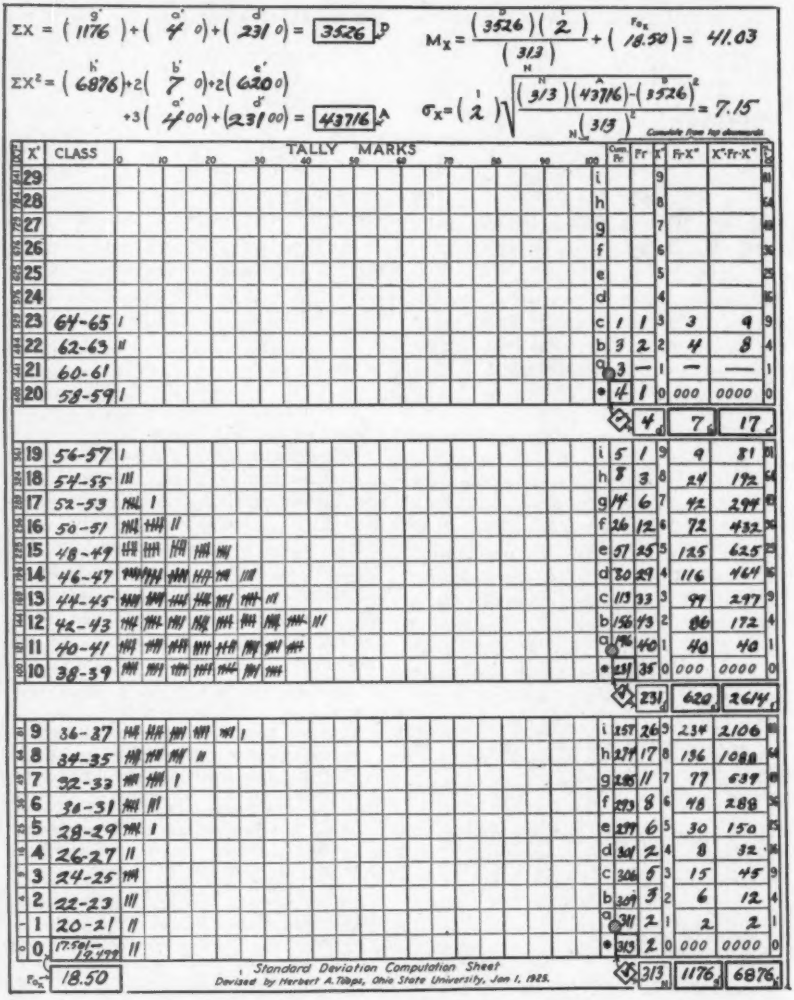

FIGURE 1. Reproduction of a chart for solving the standard deviation

7. Summate these frequencies, *from the top of the table downwards* taking off subtotals at box-*a'* and box-*d'*, obtaining finally the sum of the frequencies, N at the foot of the column in the box labeled (N).

8. Enter the cumulative frequencies, *cumulated from the top of the chart downwards*, in the column headed, (Cum. Fr.). Verify the correctness of the additions in step 7, by noting whether cumulative frequencies at

a', d', N check with the subtotals at those points found in operation 7. If these check, enter a check mark in each of the check diamonds provided for that purpose.

9. Multiply the frequencies in the column (Fr.) by the X″-step to the right.
10. Multiply the extension just found by X″, thus obtaining the extensions, (X″·Fr·X″). Or still better, multiply the frequencies by the multipliers, $[(X'')^2]$, found at the right of the column (X″·Fr·X″).
11. Summate the entries in the column (Fr·X″), taking off subtotals at b', e', and g'.
12. Summate the column (X″·Fr·X″) taking off subtotals at c', f' and h'.
13. Substitute the window quantities above found in the skeleton formula for ΣX and ΣX^2, given at the top of the sheet, and solve for D and A.
14. As a check on the above procedures one may obtain D and A by summating the X′-steps and their squares, both of which are printed on the chart. Set up X′ in the left-hand half of the keyboard of a calculating machine and $[(X')^2]$ in the right-hand half of the keyboard; then crank the machine as many times as there are frequencies for that particular X′. After repeating the procedure for all the other steps, ultimately the left-hand half of the sum-window will show D while A will appear in the right-hand half of the machine.
15. If these checks hold, then substitute the quantities, D and A, in the formula for σ_x and solve.
16. The formula for the mean is

$$M_x = \frac{D \cdot I}{N} + F0_x \quad \ldots\ldots\ldots\ldots (11)$$

in which, I is the class interval; and $F0_x$ the face value of the 0-step.

$F0_x$ may be more readily found by carrying out to four decimal places the very lowest value which may be plotted in the 0-step; by adding thereto the highest value carried out to four decimal places, which can be plotted in the 0-step; and then by dividing the sum by 2.

The author has applied this procedure to the computation of the correlation coefficients using the following formula:

$$X' = -X''_a + 10k + X''_b.$$

X_a is a printed deviation measured from a multiple of 10 in the X′-series, of the printed chart in the case of those X′-steps which are negative.

X_b is a printed deviation, measured from a multiple of 10 in the X′-series, of those X′-steps which are positive.

k is a constant, either 1 or 2 in value depending on from which multiple of 10 the X″-steps are reckoned.

In the correlation chart devised for this purpose the X′-quantities are both minus and plus, thus making the X″ series reversed with respect to the X′ series.

ON THE FIRING LINE

Dr. C. O. Mathews, a graduate of Kansas Wesleyan and Teachers College, has joined the staff of the Department of Education at Ohio Wesleyan. Dr. Mathews is to teach some courses in education and have complete charge of educational measurements.

Cleveland has established a teachers' traveling library. Collections of books are sent out to the elementary schools in regular traveling-book boxes which may be placed on a shelf or table in the teachers' rest room. Books of general interest as well as those of an educational nature are included in the collections.

Ashtabula County is making a special study of failure. A special form was devised for giving the history of progress, intelligence tests, teacher's opinion of why the pupil was failing, and a statement of what was being done to assist the pupil. Failure has been cut from 13 percent in 1922-23 to 4.9 percent in 1926-27.

A. G. Welshimer, county superintendent of Champaign County, has recently made a graphic comparison between the enrollment by grades in the schools of that district in 1914-15 and 1926-27. The number of high-school graduates has more than doubled since 1915, and the total high-school enrollment has increased 72 percent. The total enrollment, however, decreased from 3,815 in 1914-15 to 3,548 in 1926-27.

Writing and "directed study" are receiving special emphasis in the schools of Ashtabula County this year. In the directed study, individual teachers are developing class procedures which will be used as a basis for discussion in teachers' meetings.

The following is part of a letter sent in to the editor by Superintendent Daw, Wellsville, with no thought of publication. It seemed stimulating enough, however, to pass on to others.

Our school year is divided into six terms of six weeks each. From each of the grades, a committee of teachers is selected to meet at the beginning of each term to outline the objectives for that term. These objectives indicate the ground to be covered and the subject-matter that is to receive special emphasis during the term. Near the end of the term these same committees meet again and formulate objective tests for the various grades and subjects. These tests are then sent to my office where they are mimeographed and returned to the teachers. During the last week of the term tests are submitted to the pupils, papers checked by the teachers, and the results for the whole system are compiled. The plan seems to unify our work and to make our aims more definite. When the teachers meet to plan the objectives, they exchange ideas and this stimulates their work.

On September 19 work was begun on a new high-school building in Bowling Green. This building will cost approximately $250,000 and is to be ready for occupancy by September, 1928. When this building is completed the junior and senior high schools of the city will be housed in separate buildings.

Dr. T. C. Holy, assisted by J. A. Baer and J. L. LaPoe, of the Bureau of Educational Research, is directing a building survey of elementary and secondary schools in West Virginia. This survey is a part of the larger study of elementary, secondary, and higher education which is being carried on under the direction of Dr. L. V. Cavins of the Bureau of Investigation and Statistics of the West Virginia State Department of Education. The Advisory Committee consists of Dr. Charles H. Judd and Dr. George A. Works, of the University of Chicago, and Dean John W. Withers and Dr. Paul V. West, of New York University.

The Ohio State University is issuing a new publication under the general title, *Ohio State University Faculty Studies*. President Rightmire's announcement in the first number states that these studies or reports "will appear at irregular intervals." Three numbers have been issued to date, each of which has dealt with some phase of a university problem. The three problems already considered are: "Summary of a Statistical Analysis of the Delinquencies (Failures and Incompletes) Occurring in the Ohio State University during the Autumn Quarter, 1926"; "Intercollegiate Relations Regarding Course Registrations in the Ohio State University during the Autumn Quarter, 1926"; and "Summary of a Study of Delinquencies (Failures and Incompletes) Incurred in 143 Courses Where Freshmen Were Enrolled during the Autumn Quarter, 1926."

SOME SUGGESTIVE RESULTS OF A STUDY OF COMPARATIVE STATISTICS

In any study of statistics, fair conclusions can be arrived at only when parallel results follow parallel conditions. The following statements are as nearly fair as can be formulated when it is remembered that the Cleveland High School of Commerce, now called the West Commerce High School, was organized by bringing together from five other high schools those pupils who were taking commercial courses, and that, after nine years, seven hundred pupils were withdrawn from this high school to organize another high school of similar character on the east side of the city.

One of the purposes of the study was to try to determine whether pupils who enter in September differ in caliber from those who enter at midyear. To do this the percentage of failures was calculated in all subjects for eight years. The average rate of failure in IX-B subjects was found to be 7.8 percent; in IX-A, 6.5; in X-B, 10.1; in X-A, 10.8; in XI-B, 7.9; in XI-A, 4.2; in XII-B, 3.2; in XII-A, 2.3. Taking all these subjects together by semesters, it was found that the average rate of failure for pupils entering in September was 6.4, while that of pupils entering at midyear was 6.7, thus showing a difference so small as to be negligible.

At the same time it was noticeable that the high rate of failure occurs in the tenth year. It has been our experience that withdrawals from school are more numerous in the latter part of the tenth year and between the tenth and eleventh grades. Why this is true, if other schools corroborate our findings, should be a question worth some investigation. Is it due to the changes which occur in the tenth year in the character of the subjects, to the different type of instruction which develops at this point, to the physical modifications of adolescence, or to the fact that here many reach the age at which school attendance is no longer obligatory?

The enrollment of the High School of Commerce grew from 464 to 1,071. In 1918 it was divided, 700 going into the organization of the east-side school. Since then, under the name of the West Commerce High School, it has again grown to more than thirteen hundred. The ratio of boys to girls started as 53 to 47 percent. This swung the other way the following year, after which time the comparative number of boys decreased until, in 1921, the ratio was 13 to 87 percent. Since then the pendulum has been slowly swinging back until the last year when the ratio was 27 to 76 percent.

From a somewhat different angle, these statistics, when carried through the eighteen years of the school's history, show that of a total of 5,797 entrants, 700 were removed to organize another high school, and 1,137 remained in West Commerce at the date of this study. This leaves 3,960 to be accounted for. Of these, 2,218 or 56 percent, have been graduated. Previous to the organization of this school, about 8 percent of the entrants to high-school business courses in this city were graduated.

S. R. HOOVER
Cleveland

THE NEWSPAPER AS A TEXTBOOK

Glenn Frank recently said, "I should like to see an educational experiment made in which a good daily newspaper was the only textbook used. The teacher should each day induce the pupils to fill in the background and to find the meaning of the news."

This statement was of especial interest to the writer, for her geography class had used the newspaper during the previous semester as a textbook, and various geographies, civics, and histories as reference books. When the semester's work was finished each continent, most of the large countries, some islands, and a little physical geography had been studied.

The first problem came with the newspaper account of the hurricane which caused damage to the eastern coast of Florida and the Gulf States. The class was interested in ascertaining the cause of hurricanes and the damage previously done in the United States by such storms. All other natural phenomena which cause loss of life and property were investigated by committees and reports were given on volcanoes, earthquakes, tidal waves, and land slides.

Germany's admission to the League of Nations was an event which brought forth histories for a review of the World War and the origin of the League.

Countries which were united and involved were studied and the children made to realize their relative merit and importance. On a map of the world the countries which belonged to the League were indicated in colors. The Locarno treaties gave rise to an interesting question: Why are so many treaties made in Switzerland? In the study of this problem were involved the geography and some history of Switzerland.

Queen Marie's visit to the United States aroused interest in Roumania, and Bucharest was compared with Cleveland. The Queen's route to the United States was marked upon maps; not only European cities, but some cities in the United States became more interesting because they were visited by a queen.

The mysteries of the Orient came to light with the newspaper stories about China and its civil war. A cartoon representing China as a dragon with England, France, Japan, and Russia being thrown off its back excited interest in the special privileges practiced by these nations. The question arose as to why there were so many concessions and one-sided treaties used by foreign nations in China. A study of the undeveloped resources combined with the facts they had already learned helped to answer this question.

Latin-American news had its place in our papers. The Tacna-Arica dispute was first studied. In order to understand the fairness of Secretary of State Kellogg's plan to sell the provinces to Bolivia we studied the geography and history of Chile, Bolivia, and Peru. The class decided that Bolivia was not so fortunate as the other countries and that she had a right to own the disputed territory.

The entire geography class kept notebooks, and many of the events recorded were illustrated by pictures which had been cut from the newspapers and by maps and graphs which the pupils had drawn. The subject of the picture frequently was written in a notebook, and a map made to show the location of the place pictured, when the subject was related to geography. These notebooks are prized by the pupils for they contain a world geography of their own making.

This use of the newspaper as a textbook gave the pupils a meaning of the news as well as a broad course in geography. What is more, it showed the relationship of the subject which they were then studying to history, religion, education, and art.

EVA FISHER
Cleveland

THE INDUSTRIAL ARTS IN EDUCATION

(*Continued from page 269*)

was the most important thing in life, that knowing right meant doing it. Even moderately wise men nowadays know better than to believe this entirely. Of course, intelligent action will always rest upon understanding; but no amount of knowledge, of itself, is going to insure right action. A big majority of people who go wrong, know better. Men and women act according to habits formed—for the most part, the habits formed in childhood and youth. That is true of all their acts—skill, habits in doing things, habits of thinking, and moral habits. Since this is true, the most effective way of preparing people to live in an industrial society—in fact, the only effective way—is to train them for it. Training is not a product of abstraction; habits are customary reactions to specific situations. Hence, conduct desirable in an industrial society may be derived only in response to industrial situations, actual or closely simulated. All in all, it seems only reasonable to say that no school is doing what it ought to do for the coming generation of its community unless it makes a strong provision for education in the practical arts of industry.

EDUCATIONAL READINGS

RUNNING, J. E. *The Daily Program of the High School*, *ASBJ*, 75:45–47, 136, October, 1927.

Some 300 high schools in cities of more than five thousand population, located in every state in the District of Columbia, participated in this study. Eleven tables are included which give such information as time of morning roll-call, time building is opened to pupils, time of dismissal, length of recitation periods as related to the number of periods in the school day, and provision made for supervised study. This study brings out the wide difference in the manner in which high schools use the school day.

WITHAM, ERNEST C. *Public-School Progress of the States*, *ASBJ*, 75:37–39, October, 1927.

In determining the index of holding power for the states the author uses a formula which he develops in some detail in the August number of the *Educational Digest*. A map is presented which shows the index of holding power for each state in 1923-24. The public-school standing of the states by the Ayres Indexes, the Phillips Method of ranking states, and the formula developed by the author is given in the tabular form.

PYLE, WILLIAM HENRY. *Intelligence and Teaching: An Experimental Study*, *EAS*, 13:433–48, October, 1927.

This article reports a series of experiments tried out in the Detroit Teachers College relating teaching success of practice teachers as judged by critic teachers with general intelligence and determined through fifteen tests. "Intelligence as determined by various types of psychological experiments is a just-barely-perceptible factor in teaching success."

PINTNER, RUDOLF. *A New Intelligence Test for Survey Purposes*, *TCR*, 29:18–23, October, 1927.

An abridged form of intelligence test has been constructed for survey purposes. The test is characterized by an extremely rapid and accurate method of scoring. The validity and reliability of the tests seem to be adequately attested by the correlations given. They are designed as general survey scales and are not held to have sufficient accuracy for individual diagnosis.

JONES, HAROLD E. *A Comparison of the Intelligence of Extension and College Undergraduate Students*, *S&S*, 26:469–70, October 8, 1927.

The median Army Alpha for the college undergraduates was 22.5 points higher than for the extension students, the median score for the college group was equaled or surpassed by only 15.2 percent of the extension group, and only 6.1 percent of the latter group surpassed the third-quartile score of the college group. Both groups were made up of students in elementary psychology at Columbia University. "An attempt to do equivalent work, in parallel classes of the two departments, disregards a fundamental disparity in the equipment of the two groups."

THOMPSON, CHARLES H. *The Preparation of Kindergarten-Primary Teachers*, *EAS*, 13:449–58, October, 1927.

A study was made of the catalogues and other available information of fifty-five institutions offering two years of kindergarten-primary training for teachers to determine the contents of their kindergarten-primary courses of study. The author found extreme variation in the stated aims and methods.

The necessity is emphasized for "some objective means for determining the aim of kindergarten-primary training as well as the need for some specific means of attaining that aim."

MORRISON, J. CAYCE. *School Savings Banks from the Viewpoint of Parents and Children*, *EAS*, 13:489–94, October, 1927.

A study was made of the effectiveness of the methods of motivating school savings in six Ohio cities through analysis of questionnaires sent to pupils, parents, teachers, and principals. The author found whole-hearted support of the school-savings-bank idea, but two major weaknesses. These dealt with the motives of the child and of the parents for saving, and with the sources of the money which these children put in the savings bank.

OWENS, WILLIAM A. *On a Certain Value of the Thurstone Tests in Predicting Scholarship*, *EAS*, 13:495–99, October, 1927.

By comparing the translated scores of the Thurstone tests with the Army Alpha, Form 8, in testing students of the Winona State Teachers College in 1925 and through a comparison of the results of both of these tests with the scholastic standing of the students, it was found that Thurstone tests were better indices of scholastic achievement than the Army Alpha. The author feels that the length of the Thurstone tests demanding more sustained effort is the reason for this higher predictive value.

DAHL, EDWIN J. *Choosing a Textbook in the Senior High-School Social Sciences*, *SR*, 35:621–26, October, 1927.

The purpose of this article as set forth by the author is "to advance an argument for a scientific

NOTE.—The abbreviations used in this issue are: *ASBJ*, American School Board Journal; *EAS*, Educational Administration and Supervision; *TCR*, Teachers College Record; *S&S*, School and Society; and *SR*, School Review.

method of choosing textbooks as opposed to a hit-and-miss policy of cursory examination." A topical analysis was made of forty-one textbooks in the social sciences under three headings—subject material; teaching aids; and preface, appendix, index, and the like. That there is a wide difference in textbooks is shown by the fact that the proportion of civics books devoted to subject material ranges from 60 percent in one case to 92 percent in another. The writer emphasizes the need of a careful examination of the books before the actual selection is made.

MADDOCKS, CARL W. *The Factor of Intelligence in School Failures*, SR, 35:602–11, October, 1927.

Failure as used in this study, which includes Grades VII through XI, means failure in the fundamental subjects.

The conclusions drawn from this study are: first, there is a high correlation between the mentality of the pupil and the quality of his school work; second, failure in school work indicates a low type of mentality; and, third, teachers think that school failures are due to low mentality.

SPENCER, LLEWELLYN T. *College Achievement of Private and Public School Entrants*, S&S, 26:436–38, October 1, 1927.

This is a significant study. Comparison of four Yale classes shows that public-school entrants are superior to those entering from private schools in four respects, namely: (1) intelligence test scores; (2) academic grades in college; (3) likelihood of gaining a degree and gaining it on time if they do at all; and (4) less likelihood of withdrawal or being expelled. Also, the public-school entrants choose the scientific courses more often than do the others. The private-school entrants surpass those coming from the public schools in but one respect—entrance-examination grades. These facts would seem to indicate that entrance-examination grades are of somewhat doubtful value in predicting success in college. The mixed group, made up of both public- and private-school entrants, occupies an intermediate position. Dr. Spencer's findings are contrary to those of Anderson, Jones, and Fenton and Howard, who found the private-school entrants to be superior.

IN PAPER COVERS

ANDERSON, HOMER W. *A Method for Determining the Housing Requirements of Junior High School Programs*. Iowa City, Iowa, University of Iowa, 1926. 56 pp. (Studies in Education, Vol. III, No. 3)

One of the difficult tasks of the school administrator is to determine the kind and capacity of rooms needed to house a given number of pupils. In this study, two formulas are developed, first, the number of classrooms required and, second, the capacity of these rooms. In the application of the second formula the allowances which should be made between the classroom capacity and the average size of class have been determined by the size of the school. On the whole, the study presents a simple yet effective method of determining the housing requirements for junior high-school programs.

FOOTE, JOHN M. *School Record and Report Forms Used in Louisiana Schools*. Baton Rouge, Louisiana, State Department of Education of Louisiana, 1927. 51 pp.

The Foreword to this publication states that it "brings together the various report forms used in the public-school system and gives specific directions for their use." This represents another attempt to improve school records and reports.

HUGHES, GWENDOLYN S. *Outline for a General Course in Rural Sociology*. New York, Institute of Social and Religious Research, 1927. 28 pp.

This outline is based on the American Village Studies of the Institute of Social and Religious Research, and is, therefore, something more than an "armchair" course. It is made up of twenty-eight sections which, in turn, are classified into three main categories—composition and structure of the rural population, economic interaction of villagers and open-country dwellers, and the functioning of the social life of agricultural communities. A three-page bibliography completes the outline.

STRAYER, George D., ENGELHARDT, N. L., AND ELSBREE, W. S. *Standards for the Administration Building of a School System*. New York, Teachers College, Columbia University, 1927. 40 pp.

Authorities in city schools are rapidly learning the importance of a properly arranged and well-equipped school-administration building. Some cities have remodeled old school buildings, but there are many difficulties in the way. The better way is to build an adequate building. This addition to the Strayer-Engelhardt Score Cards for buildings gives standards for rating the existing buildings and for architects and others to use in planning new buildings.

OHMANN, OLIVER A. *A Study of the Causes of Scholastic Deficiencies in Engineering by the Individual Case Method*. Iowa City, Iowa, University of Iowa, 1927. 58 pp. (Studies In Education, Vol., III, No. 7)

This study represents a part of the general research program of the Board of Investigation and Coordination of the Society for the Promotion of Engineering. This program was prompted by

the fact that "the ratio of graduations to admissions among engineering colleges is approximately 38 percent—the lowest of any division of collegiate work for which figures could be obtained." The report of the present study deals with the diagnosis and adjustment of 128 cases of deficient students in the College of Engineering at the State University of Iowa during 1924-26. One of the most interesting of the several conclusions is that "factors of emotional adjustment and motivation are especially operative among students of high intelligence, who might be salvaged."

CLARK, HAROLD F., AND ROYALTY, PAUL. *When to Issue School Bonds.* Bloomington, Indiana, Bureau of Cooperative Research, Indiana University, 1926. 15 pp. (Bulletin of the School of Education, Vol. II, No. 6)

The purpose of this study is to determine seasonal fluctuations in bond prices and interest rates in order that the sale of bonds may be so regulated that advantage can be taken of these seasonal fluctuations. The general conclusion drawn is that bonds should not be issued between December 15 and January 15 and that the months of May, June, July, and August, and the low period from January 15 to February 15, are—other things being equal—the most desirable time to sell school bonds.

BOOKS TO READ

LARUE, DANIEL WOLFORD. *Mental Hygiene.* New York, Macmillan Company, 1927. x + 443 pp.

This book, like many others on a similar subject, is a baffling mixture of some scientific facts and much speculation. In addition to the technical vocabulary of psychiatry the author gives us *phreno-mens* and *intelligects*. In reading the book one doesn't really feel the need for these terms. It is still an open question whether it is advisable to include the morbid and the abnormal and unusual in a book intended for general circulation. Active imaginations seize upon and recognize neurotic symptoms that may not be there at all.

GATES, ARTHUR I. *The Improvement of Reading.* New York, Macmillan Company, 1927. xii + 440 pp.

"This book presents a detailed account of a system of measuring achievement, diagnosing difficulties, and conducting instruction in reading. Probably the most important contribution of the volume is the demonstration of the utility of a new method of teaching reading." The book is written for the instructional staff, including teachers, principals, and supervisors, and for those who direct psychological and educational measurements and diagnosis.

SYMONDS, PERCIVAL M. *Measurement in Secondary Education.* New York, Macmillan Company, 1927. xvii + 588 pp.

Perhaps the author attempted too much, for he has done some parts of the book less well than others. However, the chapter on "Why Better Measurement in High Schools?" is particularly timely. A great service has been rendered by collecting and editing data from many sources bearing on the various phases of measurement. The problems for further investigation add much to the value of the book.

The criteria presented by the author for the choice of tests are excellent, but how shall they be applied by the teacher? The teacher's only source of evidence, as a rule, is the statement of the author, or the advertisement of the publisher of the test, and sometimes this fails to state all the facts. If the authors of all tests would present the objective data which would answer the questions raised by the criteria, the task would be far easier.

MEREDITH, FLORENCE LYNDON. *Hygiene.* Philadelphia, P. Blakiston's Son and Company, 1926. xiii + 719 pp.

The author's treatment of the problems of hygiene is so sane and wholesome that it cannot help but make an impression. Her frankness is never intrusive nor offensive, yet it does not gloss over nor hide the dangers of non-conformity to established rules of hygienic living.

It seems a bit unfortunate, but perhaps it is necessary, to include so much material on elementary anatomy and physiology. Much of the material in Parts II and III is valuable and interesting, but the real hygiene comes in Part IV. There are nearly 375 pages of this part alone, a good-sized book in itself.

This book is intended as a text for college classes in hygiene. Much of the material should be made available for boys and girls in the secondary schools. Certainly the young people who study this book and actually assimilate and use the knowledge gained from it, will be healthier and happier for the experience.

O'SHEA, M. V. *A State Educational System at Work.* The Bernard B. Jones Fund, 1927. xvi + 368 pp.

In 1925 the author of this volume conducted a study of public education in Mississippi. Many fundamental problems which could not be investigated on account of lack of funds were encountered. This volume deals with a program of tests and measurements which were set up further to investigate some of these problems, the funds for which were provided by Mr. Bernard B. Jones, of Washington, D. C. In a state-wide comprehensive program including the intellectual status and the educational achievement of the students of

elementary schools, high schools, and first year in college, a large number of findings would of necessity be met. Among these is a statement to the effect that high schools of Mississippi hold the pupils throughout the entire four-year course more successfully than any other state in the Union.

NEW TESTS

The Sims Score Card for Socio-Economic Status is designed to ascertain and record the general cultural, social, and economic background in the homes of school children. By means of this score card it is possible to represent quantitatively and to treat statistically the derived data. The Public School Publishing Company is the publisher.

The Compass Survey Tests in Arithmetic, published by Scott, Foresman and Company, are issued in two series, elementary and advanced. There are two forms of each series, making it possible to measure progress. There are tests in each of the four fundamental operations, a test in percentage, and one in general problems. Norms are presented for age and grade.

A Test at the Completion of Food Preparation Courses in the Junior High School by Miss Nina Streeter and Miss Mabel Trilling may now be obtained from the Public School Publishing Company. This is composed of twenty-five exercises on the proper ways to prepare foods. Textbooks and courses of study now in use were the basis for the items chosen. Judgment, as well as information, are involved in answering the questions correctly.

It is now possible to grade neatness in arithmetic as accurately as quality in handwriting. This may be done by means of the Arithmetic Neatness Scale of F. B. Knight and W. E. McClure, which is published by Scott, Foresman and Company. The scale consists of ten samples of arithmetic work of varying degrees of legibility and neatness, varying from 0 to 9. The variations between successive samples are approximately equal. Grade norms are being established. Pertinent suggestions with regard to neatness appear on the scale, and provision is made for recording the average value ratings of the grade group.

An interesting Rating Scale for School Habits has been developed by E. L. Cornell, W. W. Coxe, and J. S. Orleans, of the Educational Measurements Bureau of New York State, and published by the World Book Company. The scale gives nine school traits which influence success in school work. For each trait there is a horizontal line of which three ratings are marked and described, representing the poorest, the average, and the best in that trait. After determining just where the pupil belongs, a cross is made at the place on the line showing to what extent the pupil is estimated to possess that trait. This is done for each trait and the line connecting the crosses gives the pupil's school-habit profile graph.

More and better scales are being continuously devised for use in testing the pupil's knowledge of a foreign language. The German Reading Scales of the American Council on Education were devised by M. J. Van Wagenen and Sophia Hubman Patterson under the auspices, and with the cooperation, of the Modern Foreign Language Study. The test consists of paragraphs of measured difficulty. Each paragraph is followed by five statements which may or may not be answered in the paragraph. The pupil is supposed to check the statements which are definitely given in the paragraph. The scoring of the tests seems somewhat complicated. The tests, two forms of which have been prepared, may be secured through the Public School Publishing Company.